

CLAIMS

What is claimed is:

- 1 1. A visually significant barcode system comprising:
2 an encoding module for receiving a message and a logo and based thereon for generating a
3 visually significant barcode having the message encoded therein.
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- 1 2. The visually significant barcode system of claim 1 further comprising:
2 a print engine coupled to the encoding module for receiving the visually significant
3 barcode and based thereon for rendering a hard copy of the visually significant
4 barcode.
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- 1 3. The visually significant barcode system of claim 2 wherein the
2 print engine utilizes a halftone algorithm to render the hard copy of the visually significant
3 barcode.
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- 1 4. The visually significant barcode system of claim 1 further comprising:
2 a decoding module for receiving an acquired version of the visually significant barcode
3 and based thereon for recovering a message encoded therein.
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- 1 5. The visually significant barcode system of claim 4 further comprising:
2 an acquisition engine coupled to the decoding module for receiving a hard copy having a
3 visually significant barcode, and based thereon, for generating the acquired version
4 of the visually significant barcode.
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- 1 6. The barcode system of claim 4 wherein the encoding module and the decoding module are
2 embodied on a media.
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1 7. The barcode system of claim 6 wherein the media is incorporated in an office machine in
2 the form of a memory.
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1 8. The barcode system of claim 7 wherein the office machine is one of a personal computer,
2 an all-in-one office machine, a printer, and a scanner.
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1 9. The barcode system of claim 6 wherein the media is a computer readable medium.
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1 10. The barcode system of claim 9 wherein the computer readable medium is one of a floppy
2 disk and a compact disc.

1 11. The barcode system of claim 1 wherein the message is one of an electronic mail address, a
2 uniform resource locator web address, authentication information, a facsimile number, and a file
3 name and location.
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1 12. The barcode system of claim 1 wherein the logo includes a user input feature for allowing
2 a user to provide information.
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1 13. The barcode system of claim 12 wherein the user input feature is one of a circle selection
2 form, check box form, and fill-in form.
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1 14. The barcode system of claim 1 wherein the visually significant barcode is utilized in one
2 of an automatic fax-back application, an automatic email-back application, copy from electronic
3 version application, and a most-recent document application.
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1 15. A method for generating a visually significant barcode comprising:
2 receiving an $M \times N$ pixel image;
3 receiving a message having a plurality of fields;
4 partitioning the $M \times N$ pixel image into a plurality of $K \times K$ image matrices; and

5 converting the $K \times K$ image matrices to $K \times K$ barcode matrices by utilizing one of a
6 predetermined set of L distinct maps; wherein the selection of the particular map is
7 based on a corresponding field of the message.

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1 16. The method as in claim 15 wherein the pixel image is one of a black and white image, a
2 color image, and a gray -level image.

1 17. The method as in claim 15 wherein the barcode matrices are multi -level barcode mat rices
2 that includes one of gray level barcode matrices and color barcode matrices.

1 18. The method as in claim 15 further comprising:
2 defining an image area for predetermined fiducial marks.

1 19. The method as in claim 15 wherein the predetermined set of L distinct maps includes a
2 predetermined set of halftoning algorithms that can be one of cluster dithering, disperse dithering,
3 and error diffusion.

1 20. A method for decoding a visually significant barcode comprising:
2 receiving the barcode image;
3 partitioning the barcode image into a plurality of sub -images;
4 comparing each sub -image with a set of L possible barcode matrices; and
5 decoding a message based on a match estimation of each sub -image to each one of the L
6 possible barcode matrices in a sequence of P symbols over $\{1, 2, \dots, L\}$.

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1 21. The method as in claim 20 further comprising:
2 receiving an image having a barcode image; and
3 locating the barcode image in the received image.

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- 1 22. The method as in claim 20 further comprising:
- 2 detecting at least one fiducial mark in the barcode image; and
- 3 using the fiducial mark to correct distortions in the barcode image.
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